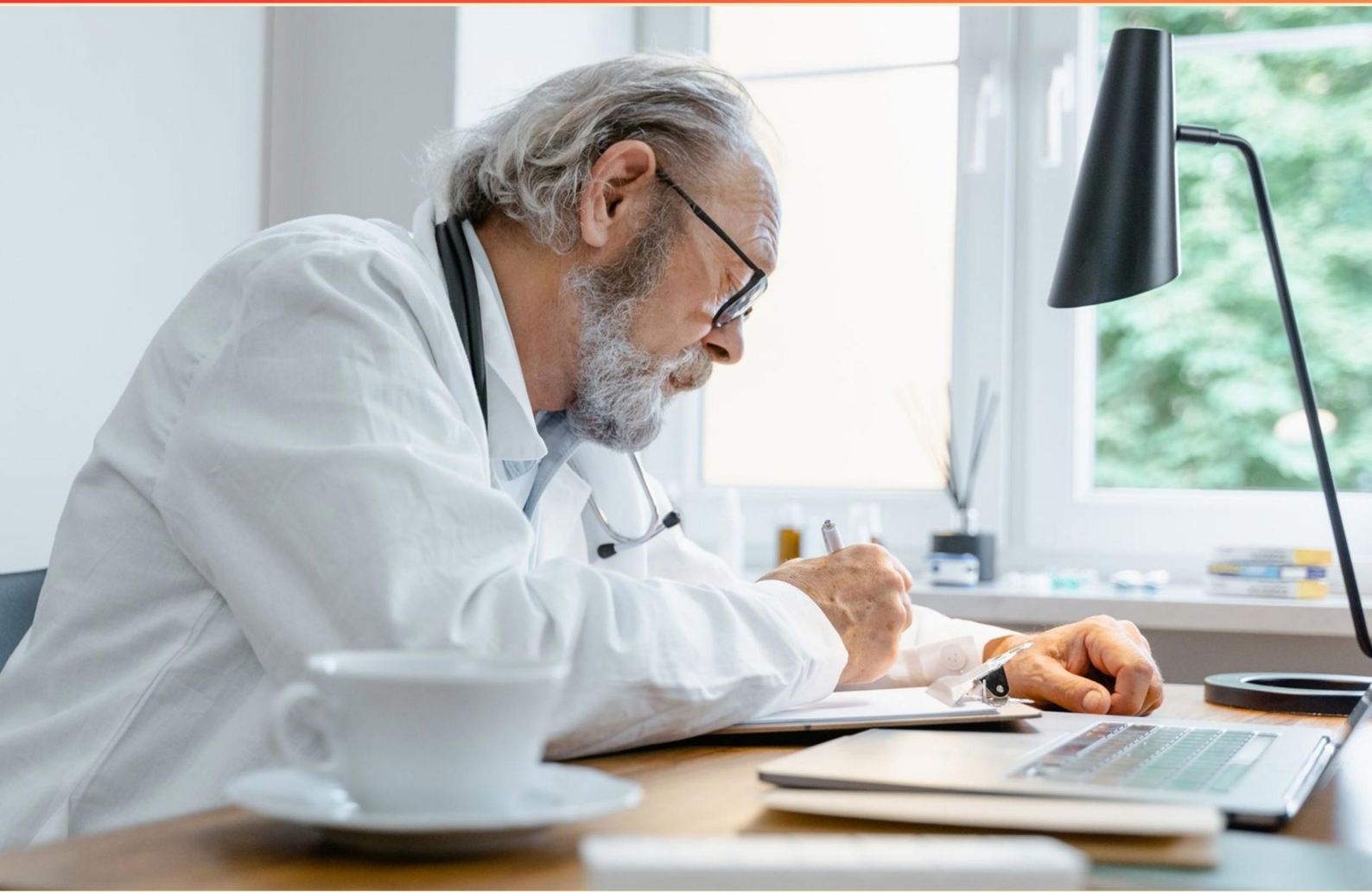


MCCANCE & HUETHER'S PATHOPHYSIOLOGY TEST 1 PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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1. **Sarcoma metastasis to which organ is most common?**
 - A. Lungs
 - B. Brain
 - C. Liver
 - D. Bones
2. **All cells are capable of what process?**
 - A. Movement
 - B. Metabolic absorption
 - C. Continuous division
 - D. Excretion
3. **Which neural group is primarily responsible for inspiration?**
 - A. Dorsal neurons
 - B. Ventral neurons
 - C. Apneustic center
 - D. Pneumotaxic center
4. **The term for mating of two related individuals that raises the recurrence risk of recessive disorders is which?**
 - A. Diploid
 - B. Discordance
 - C. Dizygotic
 - D. Consanguinity
5. **What fraction of all cancers have an activating mutation of Ras?**
 - A. 1/2
 - B. 2/3
 - C. 1/4
 - D. 1/3
6. **Which substance treats acidosis in malignant hyperthermia management?**
 - A. Sodium bicarbonate
 - B. Potassium chloride
 - C. Calcium carbonate
 - D. Magnesium sulfate

- 7. Three copies (trisomy) of chromosome 21 result in which condition?**
- A. Down syndrome
 - B. Edwards syndrome
 - C. Patau syndrome
 - D. Turner syndrome
- 8. A tear or rip resulting when the tensile strength of the skin or tissue is exceeded. Edges are jagged and irregular.**
- A. Laceration
 - B. Incision
 - C. Contusion
 - D. Abrasion
- 9. Osmotic pressure is described as which of the following?**
- A. The pulling force exerted by solute molecules that draws water across a semipermeable membrane
 - B. The pushing force of hydrostatic pressure
 - C. The electrical potential difference across a membrane
 - D. The rate of diffusion of solutes across a membrane
- 10. Tidal volume is defined as:**
- A. The maximum air exhaled after normal expiration
 - B. The total air in the lungs after max inspiration
 - C. The amount of air that remains in the lungs after maximal expiration
 - D. The amount of air moves in and out of the lungs with normal breathing

Answers

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1. A
2. D
3. A
4. D
5. D
6. A
7. A
8. A
9. A
10. D

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Explanations

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1. Sarcoma metastasis to which organ is most common?

A. Lungs

B. Brain

C. Liver

D. Bones

Metastasis from sarcomas mainly occurs through the bloodstream, and the lungs are the first and most common destination because circulating tumor cells are carried to the pulmonary capillary bed where they tend to lodge and grow. The pulmonary environment is especially conducive to these hematogenous seeds, so pulmonary metastases are the typical pattern. While sarcomas can spread to the liver, brain, or bone, those sites are less frequently the initial or most common targets. Hence, the lungs are the organ most commonly involved in sarcoma metastasis.

2. All cells are capable of what process?

A. Movement

B. Metabolic absorption

C. Continuous division

D. Excretion

All cells must rid themselves of metabolic wastes to keep their internal environment stable. Excretion is the process by which these wastes are removed from the cell, preventing toxic buildup and helping maintain proper pH and osmolarity. Regardless of cell type, some waste products are produced during metabolism—carbon dioxide from respiration, nitrogenous wastes from protein breakdown, and other byproducts. Cells use diffusion, active transport, or vesicular expulsion to get rid of these substances, so excretion is a universal cellular capability. Movement isn't universal—many cells are nonmotile or lack structures for motion. Continuous division isn't something all cells do—many enter resting or specialized states. Metabolic absorption isn't a property shared by every cell either, since absorption relates to taking in substances, which certain cells do more than others. Excretion, however, is essential to all cells, making it the best answer.

3. Which neural group is primarily responsible for inspiration?

A. Dorsal neurons

B. Ventral neurons

C. Apneustic center

D. Pneumotaxic center

The key idea is understanding which brain region sets the pace for quiet, normal breathing. The dorsal respiratory group in the medulla contains inspiratory neurons that fire rhythmically to drive the diaphragm via the phrenic nerve, producing the diaphragm's contraction that begins inspiration. This makes it the primary source of the inspiratory drive during resting breathing. The ventral respiratory group contributes more during active or forced breathing and expiration, but it isn't the main initiator of quiet inspiration. The apneustic center in the pons can promote prolonged inspiration when active, but it isn't the standard driver of normal inspiratory rhythm. The pneumotaxic center helps terminate inspiration and modulate the pattern, preventing overinflation, rather than initiating inspiration. So, the dorsal respiratory group is the principal driver of inspiration.

4. The term for mating of two related individuals that raises the recurrence risk of recessive disorders is which?

- A. Diploid
- B. Discordance
- C. Dizygotic
- D. Consanguinity**

Consanguinity is mating between related individuals. This relatedness increases the chance that both parents carry the same recessive allele inherited from a common ancestor, which raises the probability that a child will inherit two copies of that allele and express an autosomal recessive disorder. If both parents are carriers, there is a 25% chance for each pregnancy to be affected, and related parents are more likely to share the same carrier alleles, boosting this recurrence risk. The coefficient of inbreeding (F) is a way to quantify this increased risk. Other terms shown refer to chromosome number (diploid), fraternal twins (dizygotic), or differences within a group (discordance) and do not describe mating between relatives.

5. What fraction of all cancers have an activating mutation of Ras?

- A. 1/2
- B. 2/3
- C. 1/4
- D. 1/3**

Ras mutations are among the most common oncogenic alterations in human cancers, because activating changes lock Ras in a continuously signaling state that drives cell growth through the MAPK pathway. This constitutive signaling fuels proliferation and survival, helping cells become cancerous. Across all cancer types, roughly one-third harbor an activating Ras mutation, making one-third the best estimate for the overall prevalence. That rate reflects variability by tissue—some cancers show very high Ras mutation frequencies while others are lower—but the pooled average sits around 30%. So, about one-third of cancers have an activating Ras mutation.

6. Which substance treats acidosis in malignant hyperthermia management?

- A. Sodium bicarbonate**
- B. Potassium chloride
- C. Calcium carbonate
- D. Magnesium sulfate

Malignant hyperthermia creates a dangerous hypermetabolic state that drives rapid lactic acid buildup and metabolic acidosis. Giving a buffering solution like sodium bicarbonate helps neutralize excess hydrogen ions in the blood, raises pH, and supports cellular and cardiovascular function while the primary treatment—stopping the trigger, giving dantrolene, and cooling—takes effect. Sodium bicarbonate acts as an acid-base buffer, making acidosis less severe so tissues can function more effectively during the crisis. The other substances aren't buffers and don't safely correct the acid-base imbalance in this scenario.

7. Three copies (trisomy) of chromosome 21 result in which condition?

- A. Down syndrome**
- B. Edwards syndrome
- C. Patau syndrome
- D. Turner syndrome

Having an extra copy of chromosome 21 leads to Down syndrome. The additional genetic material alters development, producing the characteristic intellectual disability, distinct facial features, hypotonia, and a higher likelihood of congenital heart defects and other systemic issues. Most cases arise from nondisjunction in meiosis, and the risk increases with maternal age, though mosaic and translocation forms can occur. The other options involve different chromosomal abnormalities: Edwards syndrome is trisomy 18, Patau syndrome is trisomy 13, and Turner syndrome is a monosomy (45,X), not an extra copy of chromosome 21.

8. A tear or rip resulting when the tensile strength of the skin or tissue is exceeded. Edges are jagged and irregular.

- A. Laceration**
- B. Incision
- C. Contusion
- D. Abrasion

When tissue tears under a force greater than its strength, the result is a laceration. This type of wound shows jagged, irregular edges because the tissue is ripped apart rather than cleanly cut. In contrast, an incision comes from a sharp instrument and leaves smooth, straight edges; a contusion is a bruise with underlying tissue damage but no skin break; an abrasion is a superficial loss of the epidermis with a rough surface but not a deep tear. The description of a tear with jagged edges best fits a laceration.

9. Osmotic pressure is described as which of the following?

- A. The pulling force exerted by solute molecules that draws water across a semipermeable membrane**
- B. The pushing force of hydrostatic pressure
- C. The electrical potential difference across a membrane
- D. The rate of diffusion of solutes across a membrane

Osmotic pressure is the tendency for water to move across a semipermeable membrane toward solutions with higher solute concentration, driven by the pulling force of solute particles that cannot cross the membrane. This pulling effect draws water to dilute the side with more solute, and the strength of this force increases with solute concentration. In physiology, this is what pulls water across membranes when solutes are present on one side but not the other. The other ideas describe different phenomena: hydrostatic pressure is a pushing force due to fluid pressure, electrical potential difference is membrane potential, and diffusion rate refers to how fast solutes move, not the osmotic pull that drives water movement.

10. Tidal volume is defined as:

- A. The maximum air exhaled after normal expiration
- B. The total air in the lungs after max inspiration
- C. The amount of air that remains in the lungs after maximal expiration
- D. The amount of air moves in and out of the lungs with normal breathing**

Tidal volume is the amount of air moved in and out of the lungs with normal, quiet breathing. This is the per-breath volume you exchange during resting breaths, typically around 500 mL in a healthy adult. It reflects the usual ventilatory work of breathing rather than the extra air you can inhale or exhale with forced efforts or the air that remains in the lungs after maximal expiration. So, the statement that describes the amount of air moved in and out of the lungs during normal breathing matches tidal volume. The other descriptions refer to different lung volumes: the extra air you can inhale after a normal inhale (inspiratory reserve volume), the extra air you can exhale after a normal exhale (expiratory reserve volume), the total air in the lungs after a full inhalation (total lung capacity), or the air remaining after maximal expiration (residual volume).

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://mcancehuetherspathophysio1.examzify.com>

We wish you the very best on your exam journey. You've got this!

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